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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,037	12/31/2003	Toshihiro Fukuda	10122.005002	1938

7590 02/28/2006

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EXAMINER

LUBY, MATTHEW D

ART UNIT	PAPER NUMBER
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3611

DATE MAILED: 02/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/751,037	FUKUDA ET AL.	
	Examiner	Art Unit	
	Matt Luby	3611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-12, 15, 17, 18 and 20-35 is/are pending in the application.
- 4a) Of the above claim(s) 28 and 30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-12, 14, 17, 18, 20-27, 29 and 31-34 is/are rejected.
- 7) ☒ Claim(s) 35 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>01/05/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

Applicants RCE filed 12/16/05 has been received and the amendment filed 10/11/05 has been entered.

Election/Restrictions

Newly submitted claims 28 and 30 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The recited elastic member of these claims is part of the Species of claim 4 that was originally not elected

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 28 and 30 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Drawings

The drawings filed 10/11/05 are objected to for both being of such an informal quality that they are unacceptable for examination (Figures 1A-1D and 2A-2D show lines that are of insufficient clarity to make out exactly what type of structure is present)

as well as for not corresponding to the Brief Description of the Drawings in Applicant's disclosure (the specification does not describe Figures 1A-1D and 2A-2D).

Information Disclosure Statement

The information disclosure statement filed 5/25/05 fails (in part - reference BD, JP-138382 has no English language translation, English language abstract and is not described in the Japanese office action of reference BC) to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered with regards to the references that have been lined through.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 29 and 32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to

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which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 29 and 32 recite that the presser member has a part with which a tool for rotating the pressing member is engaged. This recitation is not supported by the specification. The specification merely discloses that an unidentified tool is used to rotate the presser, 31, onto the ball screw nut, 29, until a proper pre-load is given (original disclosure, paragraph bridging pages 15-16.)

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 29 and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 29 and 32 recite that the presser member has a party with which a tool for rotating the pressing member is engaged. This recitation is vague and indefinite because it is unclear how the tool for rotating the presser member onto the ball screw nut, 29, in the first place to put together the electrically driven power steering apparatus claimed, is still engaged with the presser member.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10, 11, 17, 18, 20, 29, 33 and 34 (29 as best understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng in view of Wallace

Cheng teaches substantially all that is closed including a ball screw nut 72, a bearing 76 and a presser member 80 abutting the bearing and having a female thread for engaging with a male thread of the ball screw nut (the presser member is understood to have been rotatably screwed onto the ball screw nut by some type of tool for putting together the parts of the steering system and wherein the presser member is attached to the ball screw nut in the normal way threaded components are attached to each other, as recited in claim 20, i.e., by not causing a deformation). Cheng does not specifically disclose a connecting device capable of limiting a relative rotation between the presser member and ball screw nut, the function of limiting a relative rotation being performed after the threads are fastened, despite loss of bonding force between the threads by means of a shearing force of resinous material that could serve as a filler coated on the threads of the presser member. Wallace discloses the known use of a resin to lock a threaded coupling which serves as a filler coated on the threads of the presser member, the function of limiting a relative rotation being performed after the threads are fastened (col. 4, lines 63-66). It would have been obvious to modify Cheng, by using a resin lock, the function of limiting a relative rotation being performed after the threads are fastened, as taught by Wallace to prevent loosening of the presser member since Cheng discloses the use of a "lock nut" and since Wallace teaches that the use resin is desirable to oppose separation of threaded members, and because the

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prevention of loosening of the presser member is clearly desirable in a critical device such as a steering system.

Since the resulting structure of the modified Cheng device would result in all the method steps of claim 33 and 34 having been performed, those respective method steps are met by the combination just discussed.

Claims 10, 12, 15 and 32 (32 as best understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng in view of Wakabayashi.

Cheng teaches substantially all that is closed including a ball screw nut 72, a bearing 76 and a presser member 80 having a thread for engaging with a thread of the ball screw nut. Cheng does not specifically disclose a connecting device capable of limiting a relative rotation between the presser member and ball screw nut despite loss of bonding force between the threads by a presser member deformed towards the ball screw, the function of limiting a relative rotation being performed after the threads are fastened. However, Wakabayashi discloses deforming a nut to provide for locking of a threaded coupling, the function of limiting a relative rotation being performed after the threads are fastened (the deformation acts to permit the nut to grip the bolt through the reduction of the inner diameter of the female threads within the nut, as depicted in Figures 3 and 4 - which would necessarily only limit relative rotation between the nut and the member with which it is threadably engaged once it is actually fastened - this is actually the whole purpose of Wakabayashi, i.e., to prevent unintentional loosening once the nut is fastened to a bolt, not prior to fastening or during fastening). It would have been obvious to modify Cheng, by using a deformed presser member, the function

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of limiting a relative rotation being performed after the threads are fastened, as taught by Wakabayashi, to prevent loosening of the presser member since Cheng disclose the use of a "lock nut" and since Wakabayashi teaches that the use of deformation is desirable to oppose separation of threaded members, and because the prevention of loosening of the presser member is clearly desirable in a critical device such as a steering system. The deformation of the presser (as part of a system to oppose separation of threaded members) would inherently limit the relative rotation therebetween to the same degree as claimed and disclosed.

Claims 21, 22, 24-27 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng in view of Wakabayashi.

Cheng teaches substantially all that is closed including a ball screw nut 72, a bearing 76 and a presser member 80 abutting the bearing and having a female thread for engaging with a male thread of the ball screw nut (the presser member is understood to have been rotatably screwed onto the ball screw nut by some type of tool for putting together the parts of the steering system and wherein the presser member is attached to the ball screw nut in the normal way threaded components are attached to each other, as recited in claim 20, i.e., by not causing a deformation). Cheng does not specifically disclose that the presser member has a connecting device capable of limiting a relative rotation between the presser member and ball screw nut by deforming on a part of a thin cylindrical portion towards the ball screw nut, the function of limiting a relative rotation being performed after the threads are fastened. However, Wakabayashi discloses deforming a nut to provide for locking of a threaded coupling,

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the function of limiting a relative rotation being performed after the threads are fastened (the deformation acts to permit the nut to grip the bolt through the reduction of the inner diameter of the female threads within the nut, as depicted in Figures 3 and 4 - which would necessarily only limit relative rotation between the nut and the member with which it is threadably engaged once it is actually fastened - this is actually the whole purpose of Wakabayashi, i.e., to prevent unintentional loosening once the nut is fastened to a bolt, not prior to fastening or during fastening). It would have been obvious to modify Cheng, by using a deformed presser member (deformed at a thin cylindrical portion - such as seen in Figure 4), the function of limiting a relative rotation being performed after the threads are fastened, as taught by Wakabayashi, to prevent loosening of the presser member since Cheng disclose the use of a "lock nut" and since Wakabayashi teaches that the use of deformation is desirable to oppose separation of threaded members, and because the prevention of loosening of the presser member is clearly desirable in a critical device such as a steering system. The deformation of the presser (as part of a system to oppose separation of threaded members) would inherently limit the relative rotation therebetween to the same degree as claimed and disclosed.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng in view of Wakabayashi, as applied to claim 21 above, and further in view of Wallace.

The modified Cheng vehicle discloses all of the claimed limitations except use of filler coated on a thread of the presser member. Wallace discloses the known use of a resin to lock a threaded coupling. It would have been obvious to modify Cheng, by

using a resin lock, as taught by Wallace to prevent loosening of the presser member since Cheng discloses the use of a "lock nut" and since Wallace teaches that the use resin is desirable to oppose separation of threaded members, and because the prevention of loosening of the presser member is clearly desirable in a critical device such as a steering system.

Allowable Subject Matter

Claim 35 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matt Luby whose telephone number is (571) 272-6648. The examiner can normally be reached on Monday-Friday, 9:30 a.m. to 6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lesley Morris can be reached on (571) 272-6612. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Matt Luby
Examiner
Art Unit 3611

ML
February 17, 2006